

RECEIVED  
CENTRAL FAX CENTER  
DEC 07 2010

REMARKS

The Office Action of June 7, 2010, and the references cited therein have been carefully considered.

In this Amendment, Independent claim 14 has been amended to positively recite the bearing plate previously recited in claim 5 and to more specifically define the mechanical connection between the second end of the further elongate member and the mechanical expansion unit and the manner in which the mechanical expansion unit is engaged to cause the second anchoring action to take place independent of the operation of the expandable anchoring unit producing the first anchoring action. Accordingly, claim 5 has been amended so that it is now properly dependent on claim 14, as amended, and claim 8 has been amended to correct an obvious informality and provide proper antecedent basis. It is submitted that the requested amendments raise no new issues requiring further search and consideration, and accordingly entry is respectfully requested.

Reconsideration of the rejection of claims 4, 5, 7, 8, 10, and 14-18 under 35 U.S.C. §103(a) as being unpatentable over the Japanese patent document '199 in view of the U.S. patent to Kovacs is respectfully requested. In urging this ground of rejection, the Examiner has taken the position that the Japanese reference teaches all of the claimed features other than the mechanical expansion anchor, that Kovacs teaches a mechanical expansion anchor of the type used in the present invention, and that consequently, it would be obvious to substitute a mechanical anchor as taught by Kovacs for one of the anchors of the Japanese reference and arrive at the invention defined in the present claims. It is submitted, however, that there is no reason provided in either of these references to combine same in the manner suggested by the Examiner whereby the problems presented by the individual type anchoring devices are overcome, and that moreover, even if the teachings of the two references were combined the result would not be the invention defined in independent claim 14 as now amended or in any of the claims dependent thereon.

The present invention is directed to a combined rock bolt including both a friction-type inflatable rock bolt and a mechanical expansion-type rock bolt in order to overcome the problems inherent in each of the two types of rock bolts as discussed in the present application. According to the present invention as defined in independent claim 14, the rock bolt according to the invention includes a friction-type anchor, including a radially expandable, inflatable, elongate tubular member (18) having a closed end (32) secured to one end of a further elongate member (12) and a mechanical expansion type unit or anchor (16), e.g., a wedge-type anchor, threadedly connected to the other end of the further elongate member (12), which is rotatable relative to the mechanical expansion unit (16). A bearing plate (20), for engaging the rock face when the rock bolt is inserted in a drill hole, is mounted on the other or opposed end of the inflatable elongate member (18) as is an inlet or valve for inflating the inflatable member (18). The inflatable friction-type anchor or elongate tubular member (18) is physically displaced from the mechanically expandable anchor unit (16) by the length of the further elongate member (12) and, during use, is disposed adjacent the mouth of the drill hole in frictional engagement with the surface of the drill hole, while the mechanically expandable unit (16) is disposed in anchoring relationship with the wall of the drill hole at a distance from the drill hole opening corresponding to the entire length of the rock bolt. With this structural arrangement, the two anchoring devices (16, 18) operate substantially independently of one another, so that as a result of the particular physical positioning of the two anchoring devices along the rock bolt and the presence of the bearing plate, an improved rock bolt which overcomes the problems of the respective different rock bolts under differing rock conditions is achieved. Note that the improved result is achieved by the combination of the features of the specific arrangement of the anchoring devices, the presence of the bearing plate and the independent and selective operation of the anchoring devices as discussed further below. It is submitted that there is no teaching or suggestion in either the Japanese reference "199 or the Kovacs patent of providing a rock bolt with a radially expandable elongate tubular anchoring member at a front end and a mechanical expandable anchoring member at a rear end of an elongated shaft,

with a bearing plate at the front end of the bolt, and with the two different anchoring devices being independently operable to provide independent anchoring actions as required by claim 14, and consequently the claims dependent thereon.

Note that as a result of the particular arrangement of the two anchors, i.e., the inflatable anchor at the front in engagement with the bearing plate and the mechanical anchor at the rear, it becomes possible to provide support for weak or friable strata provided there is sound and integral rock within the hole. The rock is used for the mechanical anchor which once installed allows for the elongate member, which leads to the inflatable anchor, to be tensioned due to the bearing plate engaging the face of the wall in which the rock bolt is mounted when the mechanical anchor is activated by rotating the collar and/or bearing plate. This has the effect of clamping the stratum between the two anchors together forming a beam and thereby reinforcing the strata. Only thereafter is the inflatable anchor activated to stabilize the combined rock bolt. There is no teaching or suggestion in either of the cited references of a rock bolt with two anchors wherein the two anchors are of different types, which can be independently actuated, and which can produce a pre tensioning between the two anchors as is the case according to the invention as defined in claim 14. Note that reversing the positioning of the two types of anchors will not result in the tensioning capability of the present invention and the resulting advantages.

The Japanese reference '199 discloses a rock bolt having a plurality of inflatable, radially expandable anchoring sections (2), with the adjacent sections (2) being connected together via tubular sections or pipes (5) or couplings (3). In the Fig. 4 embodiment referenced by the Examiner, an inflatable section (2) is provided at one end of the rock bolt, and connected via the pipe (5) to a further inflatable section (2). According to this reference, the plurality of inflatable sections (2) are all activated simultaneously. Thus no independent anchoring by the plurality of spaced anchoring sections is provided nor is there any tensioning of the strata between two adjacent anchors as results with the present invention..

The Kovacs reference, like the Japanese reference '199, discloses a rock bolt having two similar mechanical anchoring mechanisms. As with the Japanese arrangement, according to this patent the **two anchoring devices are connected so that they are simultaneously activated**. Thus there is no possibility of the tensioning effect achieved according to the present invention. Moreover, there is no teaching or suggestion in either of the references of which anchor (2) of the Japanese reference should be replaced by a mechanical anchor of the type taught by Kovacs-note that the claim specifically requires that the inflatable anchor be adjacent the mouth of the drill hole and this is necessary to achieve the tensioning effect. It is submitted that the substitution of an anchor as disclosed by Kovacs for one of the anchors according to the Japanese reference is not a simple straight forward substitution as suggested by the Examiner, but rather a novel and unobvious combination leading to an improved and advantageous new rock bolt. It is further submitted that, even if one would consider the basic combination suggested by the Examiner, i.e., a rock bolt with both an inflatable and a mechanical anchor, any combination of the teachings of the Japanese and Kovacs references would result in a rock bolt wherein the plurality of anchors were all simultaneously actuated-note that there is no suggestion in either of the references of independent actuation of the anchors. Accordingly for the above stated reasons it is submitted that claim 14, and all of the claims dependent thereon are allowable over the combination of the Japanese '199 and Kovacs references.

In view of the above amendments and for the above-stated reasons, it is submitted that all of the pending claims, i.e., claims 4, 5, 7, 8, 10 and 14-18, are allowable over the prior art of record, and are in condition for allowance. Such action and the passing of this application to issue are, therefore, respectfully requested.

If the Examiner is of the opinion that the prosecution of the application would be advanced by a personal interview, the Examiner is invited to telephone undersigned counsel to arrange for such an interview.

To the extent necessary during prosecution, Applicant hereby requests any required extension of time not otherwise requested and hereby authorizes the

RECEIVED  
CENTRAL FAX CENTER

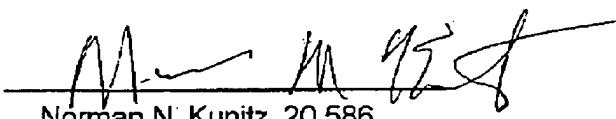
DEC 07 2010

Commissioner to charge any required fees not intentionally omitted, including application processing, extension, extra claims fees, statutory disclaimer, issue, and publication fees, to Deposit Account No. 06-1135 with respect to Order No. 7984-88126.

Respectfully submitted,

FITCH, EVEN, TABIN &amp; FLANNERY

BY:

  
Norman N. Kunitz, 20,586

Customer No. 42798  
One Lafayette Centre  
1120 - 20<sup>th</sup> Street, NW, Suite 750 South  
Washington, DC 20036  
(202) 419-7000 (telephone)  
(202) 419-7007 (Telecopier)  
NNK: bms